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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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|-----------------|-------------|----------------------|---------------------|------------------|

10/713,106

11/17/2003

Nobuo Fujita

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10/19/2006

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EXAMINER

MERCADO, JULIAN A

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/713,106

Applicant(s)

FUJITA ET AL.

Examiner

Julian Mercado

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>2005-07-08, 2003-11-17</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The document CN 1359546A as cited in the July 8, 2005 Information Disclosure Statement has not been considered by the examiner as citation of this document without its accompanying translation, English-language abstract or statement of relevance not in compliance with MPEP 609. To do so would allow for the consideration of the document independent of the accompanying Office action from the People's Republic of China (the latter which, on its own merits, has been considered by the examiner).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: a comparison step between 1) a target driven value of the electrically driven component that is indicated by a drive command corresponding to an electric power supplied to the electrically driven component and 2) the actual driven value obtained

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during the operation of the electrically driven component. See page 3 par. [0010] of the specification.

Claim 6 recites that the controller is adapted to determine the presence or absence of a freeze on the basis of an electric power supplied to the electrically driven component.

For example, the controlling means may determine the presence/absence of a freeze through a comparison between a target driven value of the electrically driven component that is indicated by a drive command corresponding to an electric power supplied to the electrically driven component, and the actual driven value obtained during the operation of the electrically driven component.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8, 12 and 14-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Wheat et al. (U.S. Pat. 6,727,013 B2)

The following applies to claims 1-8, 12 and 17-20. Wheat et al. teaches a fuel cell system used in a vehicle comprising: a fuel cell [10], a gas supply-discharge portion [104, 106] for supplying the fuel cell with a gas (such as hydrogen and air), and a controller [160]. See col. 4 line 58 et seq. and col. 5 line 11 et seq. The controller or controlling means is connected to a

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temperature detecting means or temperature detector [164] and a pressure detecting means or pressure detector [174]. (ib.) An adjustment mechanism such as restrictor valve [126] is disposed in the gas supply-discharge portion. See col. 4 line 53 et seq. A electrically driven component such as a blower [110] is disposed in the gas supply-discharge portion [106]. See col. 4 line 46 et seq. A defroster [136, 148] warms the fuel cell stack. See col. 3 lines 9-13. The gas supply-discharge portion [104] is formed by a valve [129]. See col. 4 lines 55-57.

Claims 1 and 17 each recites the controller or controlling means as determining the presence/absence of a freeze condition. This limitation is considered a statement of intended use which fails to further limit the controller in terms of structure. Notwithstanding, Wheat et al. specifically teach determining a freezing condition in the fuel cell system based on a detected temperature or pressure by detecting pressure levels and thresholds and internal stack temperatures in response to low temperatures where “water freezes and may block the flow passages of the fuel cell stack.” See col. 1 lines 60-62 and also col. 5 line 11 et seq.

Claims 2-8 and 12 recite limitations drawn to what the controller is capable of doing insofar as using, e.g. “adapted to” phraseology. While features of an apparatus may be recited either functionally or structurally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. Thus, these limitations have not been given patentable weight as the functional limitations fail to further limit the claimed apparatus in terms of structure. Furthermore, by merely reciting limitations of intended use. Notwithstanding, the functional features of the claims are asserted as taught by Wheat et al.; the forthcoming discussion also applies (and perhaps more pertinently) to method claims 14-16. Pertaining to claims 1-5 and 14-16, which recite the controller as determining a freeze condition based on a

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detected temperature or pressure, the patentees specifically teach determining a freezing condition in the fuel cell system by detecting pressure levels and thresholds and internal stack temperatures. See col. 5 lines 42-64. Regarding claims 6 and 7, which recite the controller as determining the presence/absence of a freeze on the basis of an electric power supplied to the electrically driven component, Wheat et al. teach access to “a lookup table to determine whether heating is necessary when the pressure signal does not exceed a first pressure value.” See col. 3 lines 26-32 and also col. 3 line 21 et seq. which discloses that “[t]he controller starts the blower and opens the hydrogen supply valve if heating is necessary....” Regarding claim 8, which recites that the controller is adapted to permit, when it is determined that the gas supply-discharge portion is not frozen but other component or portion of the fuel cell system is frozen, the start of the fuel cell system, and control the defroster to defrost the frozen component or portion using at least one of an electric power and heat generated during the power generation by the fuel cell system, Wheat et al. teaches this feature in, e.g. col. 3 lines 9-13 where the “controller controls the hydrogen supply valve and the blower to power the heater to warm the fuel cell stack and the water supply while the vehicle is not running.” See also col. 4 line 66 et seq. For claim 12, note that the valve [126] is disclosed as being “periodically opened to relieve pressure and to ‘burp’ the system.” (col. 4 lines 53-57) The number of steps for opening the valve is indicative of the presence/absence of a freeze insofar as purging steps [220] and [228] are in response to a condition when $P > P_{\max}$. and as stated above, detecting a freezing condition in the fuel cell system is via detecting pressure levels and thresholds and internal stack temperatures in response to low temperatures where “water freezes and may block the flow passages of the fuel cell stack.”

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheat et al. in view of Fuglevand et al. (U.S. Pat. 6,428,918 B1)

The teachings of Wheat et al. are discussed above.

For claims 9-12, Wheat et al. does not explicitly teach a notifier such as one formed by a display that provides a user with information. However, Fuglevand et al. teaches an operator interface [16] including a display [18]. See col. 5 line 60 et seq. The skilled artisan would find obvious to employ a display in Wheat et al.'s invention in order to indicate operational conditions of the fuel cell system. (ib.) As to an audio indication (claim 11), the skilled artisan would find obvious that an audio indication falls within Fuglevand et al.'s disclosed "human perceptible signal" such as one that alerts the user's sensory hearing with an audible signal.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wheat et al. in view of Fletcher et al. (U.S. Pat. 5,798,186)

The teachings of Wheat et al. are discussed above.

Notwithstanding the "adapted to" phraseology whereby corresponding functional limitations have not been given patentable weight (for the reasons discussed above), Wheat does not explicitly teach a battery such that the controller is adapted to control the defroster using an

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electric power supplied from the battery. However, Fletcher et al. disclose a battery as part of a fuel cell electric power generation system which also supplies electrical current to a defroster, i.e. an electrical heating means. See col. 3 lines 51-54. At the time the invention was made, the skilled artisan would find obvious to modify Wheat et al. by employing a battery in order to supplement the level of electrical current to the electrical heating means supplied by the fuel cell stack.

Conclusion

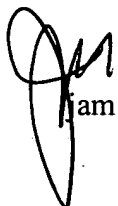
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



am



PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER